

Problems of the social non-acceptance of mining projects with particular emphasis on the European Union – a literature review

Jarosław Badera

*Department of Applied Geology, Faculty of Earth Sciences, University of Silesia, Będzińska Str. 60, 41-200 Sosnowiec, Poland
E-mail address: jaroslaw.badera@us.edu.pl*

ABSTRACT

Problems of the social non-acceptance of the mining industry (particularly development projects) is relatively new, so more widely discussed for a relatively short time. In this paper, an extensive review of worldwide literature on this topic has been presented with special regard to the specificity of the European Union countries, where the NIMBY (Not In My Backyard) phenomenon is one of the key reasons for local community opposition. The problem is recognized mainly from the perspective of the mineral industry, but also from the point of view of government, NGOs or local communities. There are case studies, publications in the range of sustainable development, corporate social responsibility, geo-ethics, proposals for new analytical methods (for example multi-criteria and others) or effective solutions. The improvement in social acceptance for the mineral industry may be achieved by further development of technological, organizational and scientific methods which minimizes mining influences on the environment and society developing. Modern approach to social issues associated with mineral activity includes also strategies of bilateral communication, mediation/negotiation, cooperation between stakeholders to a larger extent than in the past. However, it is the continuous need of extensive, in-depth social debate on mineral development projects in the European Union, both in energetic and non-energetic branch.

KEY WORDS: natural resources, mineral development, social licence, NIMBY

1. Introduction

New mining projects are a typical example of industrial investments evoking various opinions, which are usually reluctant ones (compare HILSON, 2002; ESER & LULOFF, 2003; DAMIGOS & KALIAMPAKOS, 2006; BADERA, 2010; AVCI ET AL., 2010; CAMPBELL & ROBERTS, 2010 and many other publications). Problems with the social non-acceptance of the mining industry (particularly with development projects) is relatively new, so these are more widely discussed for a relatively short time. The cause is globalization, democratization and easier access to information (including two-way access to media), which enables the activity of local communities, ecological organizations and independent media. Thus, local communities have been equipped with the tools needed to fight unwelcome investments. Thus, not only economic and spatial restrictions but also

numerous social protests substantially restrict the possibilities to use the mineral reserve base, which constitute a real danger for resource security not only of European countries. This study aims to review the widely available literature which covers the socio-environmental aspects of mining activity.

2. From socio-environmental conflicts to social license to operate – cases, analysis, solutions

More extensive studies in the area of socio-environmental problems connected with the extractive industry date back to the 1990s and the beginning of 21st century. It became clear that mining companies have to improve their environmental and community relations. Central to achieving sustainable development in the future is a partnership with all stakeholders instead

of the traditional government-industry alliance from the past, which will require major changes in the philosophy and actions of all the participants (CRAGG ET AL., 1995; HOOD, 1995; AUTY & MIKESSELL, 1998; CLARK & CLARK, 1999; HILSON, 2000; HILSON & MURCK, 2000; HUMPHREYS, 2000; WARHURST, 1998). Since that time there has been a continuous increase in the number of publications observed within the scope of sustainable development with emphasis on the role of society (e.g. HUMPHREYS, 2001; WELLMER & BECKER-PLATEN, 2002; BREAKING NEW GROUND, 2002; AZAPAGIC, 2004; HEJMANOWSKI ET AL., 2008; HEBESTREIT ET AL., 2011), corporate social responsibility (e.g. JENKINS & YAKOVLEVA, 2006; ESTEVES, 2008; KUDEŁKO ET AL., 2011; HILSON, 2012) and/or so-called geo-ethics¹ (NĚMEC, 2003; GOLD, 2005; BYRSKA-RĄPAŁA, 2008, 2013; NIKITINA, 2012, 2014). In recent times there have been mainly case studies from different developed and developing countries of Australia, Canada, Latin America, Africa, Asia, and occasionally Europe (e.g. SI HU ET AL., 2010; ODELL ET AL., 2011; MUTTI ET AL., 2012; LODHIA, 2012; VINTRO ET AL., 2012; TIAINEN ET AL., 2014), concerning the problems of small-scale, artisanal or illegal mining, too (e.g. MISERANDINO ET AL., 2013).

Generally, it has become clear that the development of deposits is possible only by obtaining a social licence to operate and mutually treating companies and local communities as partners or even a strategic partnership in the form of corporate-community investment programs (ESTEVES & BARCLAY, 2011). Conventional approaches to mineral development no longer suffice because of local community demand for a greater share of the benefits and more involvement in decision making (PRNO & SLOCOMBE, 2012; PRNO, 2013). PRNO and SLOCOMBE (2012) use governance and sustainability theories to conceptualize the complex origins of the social license to operate in the mining sector and implications for resource developers. A systems-based conceptual framework for assessing determinants and outcomes of social license in the mining industry has been advanced by the same authors (PRNO & SLOCOMBE, 2014). Their studies are based on cases from Alaska, NW Canada, Peru and Papua New Guinea. The critical elements of social license were also measured and modelled in Australia (MOFFAT & ZHANG, 2014). According to OWEN & KEMP (2013) the forward challenge for the industry is to articulate an agenda which balances its own commercial needs with broader expectations about contribution

to development. A methodological innovation is using multi-criteria analysis to integrate social impact assessment with decision-making in the mining sector (ESTAVES, 2008a,b). Use of multi-criteria methods for the risk assessment of socio-environmental conflict associated with the oil-gas exploitation, underground coal mining and aggregate surface excavation are proposed by BRODY ET AL. (2006), SOBCZYK & BADERA (2013) and SOBCZYK ET AL. (2014).

It should be emphasized that the improvement in social acceptance for the mineral industry may be achieved by: 1) developing and implementing the rules of mineral resource protection, especially within land use planning and with a correlation with nature conservation (MERILL, 1969; RAMANI & SWEIGARD, 1984; JENA, 1992; BRISTOW, 1994; NIEMAN & MERKIN, 1995; RICHARDS, 2004; RADWANER-BAK, 2007; NIEĆ, 2008) and of course by 2) further development of technological, organizational and scientific methods which minimizes the influences of mining on the environment and society (compare BOMSEL ET AL., 1996; WARHURST & MITCHELL, 1998; PTAK, 2008; GAŁUSZKA & MIGASZEWSKI, 2009; NIKOLAOU & EVANGELINOS, 2010; HEBESTREIT ET AL., 2011), despite the fact that the progress in this issue has already been enormous.

These solutions will allow us to gain the social acceptance of various industrial investments that are proposed (sponsored) mainly by different environments related to business (associations of entrepreneurs, financial agencies or scientists connected to the mineral industry) and they are usually understood as a part of Corporate Social Responsibility (CSR) or even ordinary Public Relations (PR). An example is the handbook prepared by the International Finance Corporation (an agenda of the World Bank), which aimed to provide investors with the good practice for managing stakeholder relationships; it also contains several case studies in the field of mining (STAKEHOLDER ENGAGEMENT, 2007). Another example is the guide of the International Petroleum Industry Environmental Conservation Association (OPERATING IN AREAS OF CONFLICT, 2008).

In 2010 The International Organization for Standardization launched an international standard providing guidelines for social responsibility (ISO 26 000). Its goal is to contribute to global sustainable development, by encouraging businesses and other organizations to practice social responsibility to improve their impacts on their workers, surrounding natural environments and local communities. Certified management systems are also effective tools for CSR in the extractive industry and can be used rather effectively as a means of stakeholder

¹ which integrate moral principles with special regard to the Earth as a geological body

management in practice. However, there is not much formalization of the procedures and measurement systems of CSR yet (VINTRO ET AL., 2012). Moreover, some analysis shows that important CSR issues, such as fair operating practices and community involvement and development, fall outside the scope of the adopted management system (RANÄNGEN & ZOBEL, 2014).

On the other hand, non-governmental organizations (NGOs, ecological and others) also have their own policy and tools aimed at the reduction of industrial impact on environment. An interesting example is the handbook commissioned by the Walter & Duncan Gordon Foundation (IBA COMMUNITY TOOLKIT, 2010). It addresses aboriginal communities in Canada and considers impact and benefit agreements, specifically those with mining companies. The goal of this toolkit is to help communities to achieve positive agreements. Unfortunately, in some cases, NGOs often use the fears of the local communities to support them against investors in the name of their own agenda.

A more independent toolkit was prepared by the Finnish-Swiss consortium with assistance and advice from several institutions, organizations and companies from other countries (RESPONSIBLE MINING, 2012). It is designed to help all users (mining companies, national and local governments, NGOs, local community representatives and international bodies) build their capacities to identify tensions and to prevent, or mediate, socio-environmental conflicts related to mineral development. Another similar example is the guide to Australian practice prepared by the university-governmental consortium (SOCIAL IMPACT ASSESSMENT, 2012).

Preparing and promoting the mining industry's own place within the sustainable development agenda and/or further dissemination of the CSR idea are the way to prevent socio-environmental conflicts. Unfortunately, they often do not prevent conflict on a smaller or larger scale. So, conflict management and direct methods of individual conflict resolution are needed to reach a final compromise.

The role of groups of stakeholders (stakeholder theory) have been presented in detail in many publications (e.g. BREAKING NEW GROUND, 2002; AZAPAGIC, 2004; BADERA, 2010; MUTTI & YAKOVLEVA, 2012). These groups are potential sides of conflict. HILSON (2002) examined the causes and impacts of land use conflicts between large-scale mines and community groups. He identified a series of conflict resolution strategies for mine management, which are based mainly on several communication

techniques. Each mineral development context is unique (PRNO & SLOCOMBE, 2012), so socio-environmental conflicts connected with excavations are of different kinds. Due to the local conditions in many parts of the world they may have their own specificity: ethno-cultural, historically-political and economic reasons may appear apart from spatial and ecological ones. Numerous papers describe social actors and dynamic of environmental conflicts associated with mining projects, mainly outside Europe (e.g. LANE & RICKSON, 1997; MURADIAN ET AL., 2003; HILSON & YAKOVLEVA, 2007; ANGUELOVSKI, 2011; FARRELL ET AL., 2012; VELÁSQUEZ, 2012; BACCI & DINIZ, 2013; TIAINEN ET AL., 2014).

Conflicts often arise due to a clash between corporate and community cultures. More distinct conflicts are observed in the case of the activities of global ('western' origin) companies in the developing countries of Latin America, Africa or Asia. They are less distinct in developed countries with modern mining, where exploration and excavation are currently carried out in areas inhabited by aboriginal groups (e.g. Canada, Australia) and where specific rules of cooperation among mineral developers and local communities are worked out, recommended to application and usually applied successfully (HILSON, 2000; PRNO & SLOCOMBE, 2012).

In the European Union (EU) the situation is specific because of the relatively strong urbanization and large areas of nature protection, the direct reason for conflicts is usually the difference in visions concerning future land development (e.g. KRÓL & KOT, 2010). Readily available literature has described socio-environmental issues in European countries as relatively modest (DAMIGOS & KALIAMPAKOS, 2006; BADERA, 2010; ZOBRIST ET AL., 2009; VINTRO ET AL., 2012; SUOPAJÄRVI, 2013; SOBCZYK & BADERA, 2013; RANÄNGEN & ZOBEL, 2014), probably because of the lack of large investments in the last period. At present, as a result of the increase in demand for raw materials, coal-based energy policy in some countries, as well as changes (a few years ago) in the EU resources policy in the non-energy sector, quite a lot of new mining projects have been developed, so problems with social acceptance have appeared too. In Poland, it is particularly visible in the brown coal mining-energy sector, where the social aspects have already been taken up as an important element of sustainable mineral development (KASZTELEWICZ & PTAK, 2009; KASZTELEWICZ & ZAJĄCZKOWSKI, 2010; NAWORYTA & BADERA, 2012; BADERA & KOCOŃ, 2014). In turn, SUOPAJÄRVI (2013) studied the example of Finnish ore mining

projects and how social impact assessments (SIA) have been carried out as part of environmental impact assessments (EIA) and discussed SIAs in terms of Jürgen Habermas' theory of knowledge interests.

Mining is perceived in a particularly negative light by public opinion. The origin of socio-environmental conflicts in an East-European country was the subject of [BADERA'S](#) research (2010), who did not observe any major differences between conflicts connected with various types of exploitation (both surface and underground mining). In the ore mining sector cases of conflicts are known from Finland (Talvivaara), Poland (Zawiercie: [BADERA](#), 2008), Slovakia (Biely Vrch, Kremnica), Hungary (Recsk) or Romania (Roşia Montana: [BUTIU & PASCARU](#), 2011, [VESALON & CRETAN](#), 2013; [SIRB & POPA](#), 2014; [IOAN & CARCEA](#), 2014). There are also many conflicts concerning the development of new aggregate deposits, described usually in local and trade magazines.

In the democratic system of the EU the major part of the decision-making process is in the hands of the authorities. But state and local government, which are decision-making bodies, usually reluctant to go beyond the current regulations of the law. Legal norms in individual countries of Central-Eastern Europe have also been adapted to the EU standards in terms of public consultations that take place at various stages of land-use development and environmental (EIA) procedures. Unfortunately, the rules of public consultations should be considered as ineffective, as they do not prevent conflicts and sometimes provoke them. It seems, the main reason is that inhabitants can familiarize themselves with a project of a spatial development plan or an EIA report only when these documents are ready and only afterwards can they submit comments and proposals. In practice, local communities have little influence on projected documents in the initial stages of their design, so inhabitants' impression is that everything is already decided upon. Also some case studies from countries on other continents ([FARELL ET AL.](#), 2012) demonstrate how legal challenges often exacerbate rather than resolve the conflicts.

Also the media play an important role in such types of conflicts and usually the views of the local community are presented in a more favourable manner ([BADERA & JAKSON](#), 2010). However, it should be remembered that local communities operate under conditions of limited knowledge or even ignorance, so they are impressionable and easy to manipulate. But in fact, limited knowledge affects all stakeholders.

The reason for local community opposition is the NIMBY (Not In My Backyard) phenomenon, which may be defined as the resistance of inhabitants towards the realization of the investment which is to serve not only local purposes. This syndrome means a general acceptance as far as the social need for the given investment is concerned, but also a resistance to its close localization. It is one of the types of local conflicts, as it is linked with the issue of space, both in its geographical and social meaning ([MICHAŁOWSKA](#), 2008). It is worth noting that each new investment is always connected with appropriating space of some kind. According to [MICHAŁOWSKA](#) (2008) the main source of the NIMBY notion is the lack of local society participation in the decision-making processes, as well as inadequate information about the planned enterprise. It should also be noted that NIMBY and all the other syndromes prove there is a freedom of speech. Conflicts due to the NIMBY syndrome sometimes escalate, creating the type of crisis situation which may be solved only with set communication standards used by the stakeholders. The NIMBY syndrome is not a homogeneous issue. [O'HARE](#) (1992) differentiates its three levels: economic (when the main axis of the syndrome is the threat towards common material goods, and according to the author - individual material goods as well), political (when there is no trust towards authorities, the business, the experts, see [SMITH & MARQUEZ](#), 2000) and socio-ethical (when the investment is associated with 'social illness' by the community). Apart from that there is the sociological level, in which the way of perceiving the given community, both groups and individuals, are of key importance, as well as their activity dynamics. For a more detailed description of NIMBY and other similar social phenomena (for ecological organizations the BANANA i.e. Build Absolutely Nothing Anywhere Near Anything syndrome is specific), and their origins and mechanisms may be found in the articles of [FREUDENBERG & STEINSAPIR](#) (1991), [STEELMAN & CARMIN](#) (1998), [SMITH & MARQUEZ](#) (2000), [FISCHEL](#) (2001), [ESER & LULOFF](#) (2003), [WOLSINK](#) (2006) and many others.

It seems, the model for debates and cooperation between stakeholders in the EU has to be different to those in America or Africa, both in countries of Western Europe and the emerging markets of Central-Eastern Europe (Poland, Slovakia, Hungary, Romania).

Conflicts around mining operations usually stem from poor governance ([BREAKING NEW GROUND](#), 2002). Decision-making under conflict or negotiation remains an important element of business,

engineering, and science practices (HIPEL & WALKER, 2011). In order to take the actions needed to improve our society and physical environment, two elements are necessary: data and decision support, so the need for tools supporting environmental strategic decisions is growing.

Despite the number of studies on environmental management conflicts in the 70s, no conceptual analysis of them and discussion of conflict resolution patterns had been reported until the 80s. In 1983 BOWONDER traced a major source of conflicts to the weak information or knowledge base in respect of environmental parameters. They set apart other sources and major variables of environmental management conflicts. Various conflict resolution models were adapted from the social sciences to study environmental conflict management. Using these models, it can be inferred that creative problem-solving (agreement) through environmental mediation is possible (BOWONDER, 1983).

According to ROBINS ET AL. (2011) in environmental management each situation needs to be analysed on its own terms. Environmental governance is inherently a political process and there is a need for ongoing learning, negotiation and deliberation to develop and sustain power-sharing agreements. Moreover, informal relationships are vital to understanding governance. Without a strong macro-culture (system of widely shared assumptions and values that guide actions), more conflicts or contestations are seen, as the independent entities (that make up the governance network) seek to implement their own preferred policies at the expense of others (ROBINS et al., 2011).

Conflict escalation is one of the important aspects to be understood in constructive conflict management and a Markov Chain approach can be used to identify escalation patterns (YASMI ET AL., 2006). The use of game theoretical models (quantitative and non-quantitative approaches) for conflict management as well as their use in mitigating or resolving sustainable development conflicts is studied by HIPEL & WALKER (2011). According to them, the so-called Graph Model for Conflict Resolution (GMCR), based on competition, is useful in the case of a conflict between developers and environmentalists. Multi-criteria decision analysis can be useful for modeling cooperation.

The interlinkages between conflict management and impact assessment procedures in land use planning are examined by PELTONEN & SAIRINEN (2010). They argue that a social impact assessment of land use plans may acquire features of conflict mediation, depending on the extent and intensity of stakeholder participation in the process.

One of the first broader overviews of land use conflicts between large-scale mines and community groups was presented by HILSON (2002), mainly based on cases from developing countries. This article identified a series of (land use) conflict resolution strategies for mine management. While no strategy exists that will completely satisfy both parties, compromises can be reached if: (1) community consultation between the parties is significantly improved, (2) regional governments assume a leadership role in coordinating the efforts of international agencies (3) appropriate compensation packages and support are provided for the impacted communities and (4) partnerships are forged between large- and small-scale miners (this last item concerns European mining to a small extent). As HILSON & MURCK (2000) explain (see also BREAKING NEW GROUND, 2002), effective communication with communities is essential in an industry like mining. Some community consultation techniques can be adopted for example from the Australian Environmental Protection Agency (EPA, 1995). BUCHANAN (2013) explored how multiple types of knowledge are combined and used discursively within the claim-making process. Sustainability reports published by mining companies can be a subject of critical analysis, because in some cases they only play a role in improving a company's performance and reputation (MURGUIA & BÖHLING, 2013). BACCI and DINIZ (2013) propose so-called Social Learning as a strategy to minimize/solve socio-environmental conflict based on de-monopolization of the technicians' knowledge and on learning together how to handle changes in the management of mineral resources.

3. Summary and conclusions

Many international and national studies have stated that there are a considerable number of mineral deposits available in Europe. In 2008 the European Commission initially accepted the new integrated strategy called the Raw Material Initiative; actual Communication from the Commission on this topic has been published in 2011 (EUROPEAN COMMISSION, 2011). The following key challenges of the EU mineral policy have been recognized and indicated as main pillars: (1) ensuring a fair and sustainable supply of raw materials from international markets, (2) fostering a sustainable supply of raw materials from European sources and (3) boosting greater resource efficiency and promoting recycling. In the 2nd pillar the issue of public acceptance should be considered without a doubt.

One of requirements of the European mining industry is the improvement of the EU minerals knowledge database. Socio-environmental issues harmonize with the tasks of Work Package no. 3 (*Knowledge management*) within the *Minerals4EU* project (<http://www.minerals4eu.eu/>) conducted within the EU 7th Framework Programme and they should become a part of the *Minerals4EU* knowledge data platform. Another similar 7th FP project is *ProMine* (<http://promine.gtk.fi/>), including amongst others *Sustainability Assessment and Exploitation*.

Summing up, modern approaches to social issues associated with mineral activities include strategies of bilateral communication, mediation/negotiation, cooperation between stakeholders to a larger extent than in the past. However, it is the continuous need for extensive, in-depth social debates on mineral development projects in the European Union, as well as in Non-European countries, in both the energy and non-energy branches.

References

- Anguelovski I. 2011. Understanding the dynamics of community engagement of corporations in communities: the iterative relationship between dialogue processes and local protest at the Tintaya copper mine in Peru. *Soc. & Natural Res.*, 24, 4: 384-399.
- Auty R., Mikesell R. 1998. *Sustainable development in mineral economies*. Clarendon Press, Oxford.
- Avci D., Adaman F., Ozkaynak B. 2010. Valuation languages in environmental conflicts: how stakeholders oppose or support gold mining at Mount Ida, Turkey. *Ecol. Econ.*, 70, 2: 228-238.
- Azapagic A. 2004. Developing a framework for sustainable development indicators for the mining and minerals industry. *J. of Clean. Prod.*, 12, 6: 639-662.
- Azinger K. 1998. Geology – Methodology for developing a stakeholder-based external affairs strategy. *CIM Bull.*, 91, 1019: 87-93.
- Bacci D., Diniz T. 2013. Mining in urban areas: methodological proposal for the identification and mediation of socio-environmental conflicts. *Revista Escola de Minas*, 66, 3: 369-374.
- Badera J. 2008. Opinie i postawy społeczności lokalnej wobec projektu górnictwa na przykładzie Zawiercia. *Gosp. Sur. Mineral.*, 24, 4/4: 23-40.
- Badera J. 2010. Konflikty społeczne na tle środowiskowym związane z udostępnianiem złóż kopalin w Polsce. *Gosp. Sur. Mineral.*, 26, 1: 105-125.
- Badera J. 2013. Local communities' knowledge of lignite surface mining – sources and level of satisfaction: examples from central Poland. *Environ. & Socio-econ. Stud.*, 1, 2: 29-35.
- Badera J., Jaksoń M. 2011. Rola środków masowego przekazu w konfliktach społeczno-środowiskowych związanych z działalnością górnictwem. *Prace Nauk. Inst. Górn. Polit. Wrocł.*, 132, Stud. i Mat., 39, Górn. i geol. XV: 3-9.
- Badera J., Kocoń P. 2014. Local community opinions regarding the socio-environmental aspects of lignite surface mining: experiences from central Poland. *Energy Policy*, 66: 507-516.
- Bomsel O., Borkey P., Glachant M., 1996. Is there room for environmental self-regulation in the mining sector? *Resour. Policy*, 22, 1-2: 79-86.
- Bowonder B. 1983. Environmental Management Conflicts in Developing Countries: An Analysis. *Environ. Man.*, 7, 3: 211-222.
- Breaking new ground: mining, minerals and sustainable development*. The Report of the MMSD Project. Earthscan Publ., London, 2002.
- Bristow C. 1994. Environmental aspects of mineral resource conservation in southwest England [in:] O'Halloran, D., Green, C., Harley, M. et al. (eds.), *Geological and landscape conservation*: Proc. of The Malvern Intern. Conf., 18-24 July 1993, Malvern: 79-86.
- Brody S., Grover H., Bernhardt S., Tang Z., Whitaker B., Spence C. 2006. Identifying Potential Conflicts Associated with Oil and Gas Exploration in Texas State Coastal Waters: A Multicriteria Spatial Analysis. *Environ. Man.*, 38: 597-617.
- Buchanan K. 2013. Contested discourses, knowledge and socio-environmental conflict in Ecuador. *Environ. Sci. & Policy*, 30: 19-25.
- Butiu C., Pascaru M. 2011. Sustainable development and concentric public participation. The case of the Rosia Montana gold corporation mining project. *J. of Environ. Prot. and Ecol.*, 12, 4a: 2236-2244.
- Byrska-Rapała A. 2008. Geoetyka a społeczna odpowiedzialność przemysłu surowców energetycznych. *Gosp. Sur. Mineral.*, 24, 4/4: 41-52.
- Byrska-Rapała A. 2013. Social Responsibility Concept and Strategy for Sustainable Development in the Energy Sector and Principle of Geoethics. *Proc. of Mining Pribram Symp.* The Intern. Section Geoethics, Pribram: 33-43.
- Campbell G., Roberts M. 2010. Permitting a new mine: insights from the community debate. *Resour. Policy*, 35, 3: 210-217.
- Clark A., Clark J. 1999. The new reality of mineral development: social and cultural issues in Asia and Pacific nations. *Resour. Policy*, 25, 3: 189-196.
- Cragg W., Greenbaum A. 2002. Reasoning about Responsibilities: Mining Company Managers on What Stakeholders are Owed. *J. of Business Ethics*, 39: 319-335.
- Cragg W., Pearson D., Cooney J. 1995. Ethics, surface mining and the environment. *Resour. Policy*, 21, 4, 229-235.
- Damigos D., Kaliampakos D. 2006. The 'battle of gold' under the light of green economics: a case study from Greece. *Environ. Geol.*, 50: 202-218.
- De Brucker K., Macharis C., Verbeke A. 2013. Multi-criteria analysis and the resolution of sustainable development dilemmas: A stakeholder management approach. *European J. of Operat. Resour.*, 224, 1: 122-131.
- EPA, 1995. Community consultation and involvement [in:] *'Best Practice Environmental Management in Mining' series*. Environmental Protection Agency (EPA), Commonwealth of Australia.
- Eser S., Luloff A. 2003. Community controversy over a proposed limestone quarry. *Soc. & Natural Resour.*, 16, 9: 793-806.
- Esteves A. 2008a. Evaluating community investments in the mining sector using multi-criteria decision analysis to integrate SIA with business planning. *Environ. Impact Assess. Rev.*, 28: 338-348.
- Estaves A. 2008b. Mining and social development: Refocusing community investment using multi-criteria decision analysis. *Resour. Policy*, 33, 1: 39-47.
- Estaves A., Barclay M.-A. 2011. New Approaches to Evaluating the Performance of Corporate-Community Partnerships: A Case Study from the Minerals Sector. *J. of Business Ethics*, 103, 2: 189-202.

- European Commission 2011. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Tackling the challenges in commodity markets and on raw materials*. Brussels, 02.02.2011, COM (2011), 25 final.
- Farell L., Hamann R., Mackres E. 2012. A clash of cultures (and lawyers): Anglo Platinum and mine-affected communities in Limpopo Province, South Africa. *Resour. Policy*, 37, 2: 194-204.
- Fischel W. 2001. Why Are There NIMBYs? *Land Econ.*, 77, 1: 144-152.
- Freudenberg N., Steinsapir C. 1991. Not in our backyards – the grass-roots environmental movement. *Soc. & Natural Resour.*, 4, 3: 235-245.
- Frost F. 1995. The use of stakeholder analysis to understand ethical and moral issues in the primary resource sector. *J. of Business Ethics*, 14, 8: 653-661.
- Gałaszka A., Migaszkowski Z. 2009. Problemy zrównoważonego użytkowania surowców mineralnych. *Probl. Ekorozwoju*, 4, 1: 123-130.
- Gold G. 2005. Geoethical aspects reflecting problems of the social and economic development of using mineral resources. *Proc. of Mining Pribram Symp.*, The Intern. Section Geoethics, Pribram.
- Hajkowicz S., Heyenga S., Moffat K. 2011. The relationship between mining and socio-economic well being in Australia's regions. *Resour. Policy*, 36, 1: 30-38.
- Hebestreit C., Kulczycka J., Wirth H. (eds.) 2011. *Sustainable production and consumption of mineral resources*. Publ. IGSMiE PAN, Kraków.
- Hejmanowski R., Malinowska A., Sobczyk W., Ostrega A., Pomykała R., Sobczyk E. (eds.) 2008. New Challenges and Visions for Mining. Risk management & subsidence engineering. Sustainable development in mining industry (+ Mine closure). *Gosp. Sur. Mineral.*, 24, 3/1: 470 pp.
- Hilson G. 2000. Sustainable development policies in Canada's mining sector: an overview of government and industry efforts. *Environ. Sci. & Policy*, 3, 4: 201-211.
- Hilson G. 2002. An overview of land use conflicts in mining communities. *Land Use Policy*, 19: 65-73.
- Hilson G. 2012. Corporate Social Responsibility in the extractive industries: Experiences from developing countries. *Resour. Policy*, 37, 2: 131-137.
- Hilson G., Murck B. 2000. Sustainable development in the mining industry: clarifying the corporate perspective. *Resour. Policy*, 26, 4: 227-238.
- Hilson G., Yakovleva N. 2007. Strained relations: A critical analysis of the mining conflict in Prestea, Ghana. *Political Geogr.*, 26, 1: 98-119.
- Hipel K., Walker S. 2011. Conflict analysis in environmental management. *Environmetrics*, 22: 279-293.
- Hood G. 1995. Windy Craggy – An analysis of environmental interest group and mining-industry approaches. *Resour. Policy*, 21, 1, 13-20.
- Humphreys D. 2000. A business perspective on community relations in mining. *Resour. Policy*, 26, 3: 127-131.
- Humphreys D. 2001. Sustainable development: can the mining industry afford it? *Resour. Policy*, 27, 1: 1-7.
- Ioan C., Carcea M. 2014. The Roșia Montană – Gold Corporation project in the opinion of environmental engineering students – case study. *Environ. Eng. and Manag. J.* (in press).
- IBA Community Toolkit: *Negotiation and Implementation of Impact and Benefit Agreements* (by G. Gibson and C. O'Faircheallaigh). The Walter & Duncan Gordon Found., Toronto, 2010.
- ISO, 2010. *Guidance on Social Responsibility* (ISO 26000: 2010, IDT).
- Jena P. 1992. Development and conservation of mineral-resources. *Trans. of the Indian Inst. of Metals*, 45, 2: 79-88.
- Jenkins H., Yakovleva N. 2006. Corporate social responsibility in the mining industry: Exploring trends in social and environmental disclosure. *J. of Cleaner Prod.*, 14, 3-4: 271-284.
- Kasztelewicz Z., Ptak M. 2009. Condition of the mining and energy sectors based on brown coal and conditionings of their development in Poland. *Gosp. Sur. Mineral.*, 25, 3: 137-153.
- Kasztelewicz Z., Zajączkowski, M. 2010. Wpływ działalności górnictwa węgla brunatnego na otoczenie. *Polityka Energetyczna*, 2: 227-243.
- Król E., Kot A., 2010. Influence of mineral resources on space management in communes where spas are located. *Gosp. Sur. Mineral.*, 26, 3: 21-40.
- Kudełko J., Juzyk A., Zaremba L. 2011. The influence of Management by Values (MBV) on effectiveness in mining industry [in:] The Intern. conf. 'Sustainable production and consumption of mineral resources – integrating the EU's social agenda and resource efficiency', Wrocław. [Abstracts of Papers]. Publ. IGSMiE PAN, Kraków: 45.
- Lane M., Rickson R. 1997. Resource development and resource dependency of indigenous communities: Australia's Jawoyn Aborigines and mining at Coronation Hill. *Soc. & Natural Resour.*, 10, 2: 121-142.
- Lodhia S. 2012. Web based social and environmental communication in the Australian minerals industry: an application of media richness framework. *J. of Cleaner Prod.*, 25: 73-85.
- Łucki Z., Byrska-Rapała A., Soliński B., Stach I. 2006. Badanie świadomości energetycznej społeczeństwa polskiego. *Polityka Energetyczna*, 2: 5-63.
- Marguía D., Böhling K. 2013. Sustainability reporting on large-scale mining conflicts: the case of Bajo de la Alumbrera, Argentina. *J. of Cleaner Prod.*, 41: 202-209.
- Merrill C.W. 1969. Conservation of mineral resources. *Mining Congress J.*, 55, 8: 65-67.
- Michałowska E. 2008. Syndrom NIMBY jako przykład samoorganizacji społecznej na poziomie lokalnym. *Stud. Region. i Lokalne*, 1: 60-80.
- Moffat K., Zhang A. 2014. The paths to social licence to operate: An integrative model explaining community acceptance of mining. *Resour. Policy*, 39, 1: 61-70.
- Muradian R., Martinez-Alier J., Correa H. 2003. International capital versus local population: The environmental conflict of the Tambogrande Mining Project, Peru. *Society & Natural Resour.*, 16, 9: 775-792.
- Mutti D., Yakovleva N., Vazquez-brust D. et al. 2012. Corporate social responsibility in the mining industry: Perspectives from stakeholder groups in Argentina. *Resour. Policy*, 37, 2: 212-222.
- Naworyta W., Badera J. 2012. Diagnoza uwarunkowań społeczno - gospodarczych dla projektowanego zagospodarowania złoża Gubin. *Polityka Energetyczna*, 3: 107-118.
- Němec V. 2003. Mineral deposits as ethical category [in:] Operation and development of the organization in a changing environment, III. *High School of Manag. Publ.*, Legnica: 16-19.
- Nieć M., 2008. Stulecie idei ochrony złóż. *Gosp. Sur. Mineral.*, 24, 2/2: 47-51.
- Nieman T., Merkin Z. 1995. Wildlife Management, Surface Mining, And Regional-Planning. *Growth And Change*, 26, 3: 405-424.
- Nikitina N. 2012. Geoethics: Theory, Principles, Problems. *LLC Geoinformmark*, Moscow, 18.
- Nikitina N. 2014. Mineral resource dilemma: how to balance interests of government, local communities and abiotic

- nature. *Intern. J. of Environ. Research and Public Health*, 11: 8632-8644.
- Nikolaou I., Evangelinos K. 2010. A SWOT analysis of environmental management practices in Greek Mining and mineral Industry. *Resour. Policy*, 35, 3: 226-234.
- Odell C., Scoble M., Recharte B. 2011. Improving socio-environmental outcomes at Andean mines. *Intern. J. of Mining Reclamation and Environ.*, 25, 2: 133-151.
- O'Hare M. 1992. Waste disposal? Not In My Backyard. *VSD*, 59, 4.
- Operating in areas of conflict: An IPIECA guide for the oil and gas industry*. Intern. Petroleum Industry Environ. Conserv. Association, London, 2008.
- Owen J., Kemp D. 2013. Social licence and mining: A critical perspective. *Resour. Policy*, 38, 1: 29-35.
- Peltonen L., Sairinen R. 2010. Integrating impact assessment and conflict management in urban planning: experiences from Finland. *Environ. Impact Assess. Rev.*, 30: 312-318.
- Prell C., Hubacek K., Reed M. 2009. Stakeholder Analysis and Social Network Analysis in Natural Resource Management. *Society & Natural Resour.*, 22, 6: 501-518.
- Prno J. 2013. An analysis of factors leading to the establishment of a social licence to operate in the mining industry. *Resour. Policy*, 38, 6: 577-590.
- Prno J., Slocombe S. 2012. Exploring the origins of 'social license to operate' in the mining sector: Perspectives from governance and sustainability theories. *Resour. Policy*, 37, 3: 346-357.
- Prno J., Slocombe S. 2014. A System-Based Conceptual Framework for Assessing the Determinants of a Social License to Operate in the Mining Industry. *Environ. Manag.*, 53: 672-689.
- Ptak M. 2008. The usefulness of selected scientific methods to solve the conflicts of face mining and regions Nature 2000. *Gosp. Sur. Mineral.*, 24, 3/1: 399-409.
- Radwanek-Bąk B. 2007. The concept of multi-criteria mineral resources protection. *Environ. Geol.*, 52: 137-145.
- Ramani R., Sweigard R. 1984. Impacts of land-use planning on mineral resources. *Mining Engineering*, 36, 4: 362-369.
- Ranängen H., Zobel T. 2014. Exploring the path from management systems to stakeholder management in the Swedish mining industry. *J. of Cleaner Prod.* (in press, available online <http://dx.doi.org/10.1016/j.jclepro.2014.04.025>).
- Reed M., Graves A., Dandy N. et al. 2009. Who's in and why? A typology of stakeholder analysis methods for natural resource management. *J. of Environ. Manag.*, 90, 5: 1933-1949.
- Responsible mining. A toolkit for the prevention and mediation of conflicts in the development of the mining sector* (ed.: G. Hughes). Univ. of Eastern Finland, Gaia Group Oy, Zoi Environ. Network, 2012.
- Ricci M., Bellaby P., Flynn R. 2010. Engaging the public on paths to sustainable energy: Who has to trust whom? *Energy Policy*, 38, 6: 2633-2640.
- Richards D. 2004. Integrating mineral development and biodiversity conservation into regional land-use planning. American Society For Testing And Materials, *Special Technical Publ.*, 1458: 18-38.
- Robins G., Bates L., Pattison P. 2011. Network governance and environmental management: conflict and cooperation. *Public Admin.*, 89, 4: 1293-1313.
- Si Hu, Bi Haipu, Li Xiaohong, Chunche Yang. 2010. Environmental evaluation for sustainable development of coal mining in Qijiang, Western China. *Intern. J. of Coal Geol.*, 81, 3: 163-168.
- Sirb L., Popa D. 2014. An approach in terms of fuzzy logic within Rosia Montana mining project regarding the ensurance of business and community sustainability by using cyanide. *J. of Environ. Prot. and Ecol.*, 15, 1: 223-233.
- Smith E., Marquez M. 2000. The other side of the NIMBY syndrome. *Society & Natural Resour.*, 13, 3: 273-280.
- Sobczyk E., Badera J. 2013. The problem of developing prospective hard coal deposits from the point of view of social and environmental conflicts with the use of AHP method. *Gosp. Sur. Mineral.*, 29, 4: 5-24.
- Sobczyk W. 2007. Badania opinii respondentów na temat uciążliwości środowiskowej górnictwa węgla kamiennego. *Górn. i Geoinż.*, 3/1: 497-506.
- Sobczyk W., Kowalska A., Sobczyk E. 2014. The use of AHP multi-criteria method and Leopold matrix to assess the impact of gravel and sand pits on the environment of the Jasiołka Valley. *Gosp. Sur. Mineral.*, 30, 2: 157-172.
- Social Impact Assessment of Resource Projects. Mining for Development: Guide to Australian Practice* (by D. Franks). Intern. Mining for Development Centre, 2012.
- Stakeholder engagement: Good Practice Handbook for Companies Doing Business in Emerging Markets*. Intern. Finance Corp., Washington, 2007.
- Steelman T., Carmin J. 1998. Common property, collective interests, and community opposition to locally unwanted land uses. *Society & Natural Resour.*, 11, 5: 485-504.
- Suopajarvi L. 2013. Social impact assessment in mining projects in Northern Finland: Comparing practice to theory. *Environ. Impact Assess. Rev.*, 42: 25-30.
- Tiainen H., Sairinen R., Novikov V. 2014. Mining in the Chatkal Valley in Kyrgyzstan – Challenge of social sustainability. *Resour. Policy*, 39, 1: 80-87.
- Turns D. 2008. The Socio-Economic and Environmental Impacts of Coal Mining on the Hunter Valley and Bowen Basin Communities. *Australasian Inst. of Mining And Metallurgy Publ. Ser.*, 6: 13-18
- Uberman R., Ostreǵa A. 2008. Wykorzystanie metody Analitycznego Procesu Hierarchicznego dla waloryzacji (rankingu) polskich złóż węgla. *Gosp. Sur. Mineral.*, 24, 2/4: 73-95.
- Vesalon L., Cretan R. 2013. 'Cyanide kills!' Environmental movements and the construction of environmental risk at Rosia Montana, Romania. *AREA*, 45, 4: 443-451
- Vintro C., Fortuny J., Sanmiquel L., Frejio M., Edo J., 2012. Is corporate responsibility possible in the mining sector? Evidence from Catalan companies. *Resour. Policy*, 37, 2: 118-125.
- Warhurst A. 1998. Corporate Social Responsibility & the Mining Industry. *MERN Research Bull. & Newsletter*, 13-14: 81-97
- Warhurst A., Mitchell P. 1998. Technological innovation and the minerals industry – towards sustainability in the new millennium [in:] *Minerals, Land and The Natural Environment: The Foundations of Wealth* (conf. proc.). Inst. Min. & Met., London: 147-158.
- Wellmer F., Becker-Platen J. 2002. Sustainable development and the exploitation of mineral and energy resources: a review. *Intern. J. of Earth Sci.*, 91: 723-745.
- Wolsink M. 2006. Invalid theory impedes our understanding: a critique on the persistence of the language of NIMBY. *Transactions of the Inst. of British Geogr.*, 31, 1: 85-91.
- Yasmi Y., Schanz H., Salim A. 2006. Manifestation of conflict escalation in natural resource management. *Environ. Sci. & Policy*, 9: 538-546.
- Zobrist J., Sima M., Dogaru D. et al. 2009. Environmental and socioeconomic assessment of impacts by mining activities – a case study in the Certej River catchment, Western Carpathians, Romania. *Environ. Sci. Pollut. Res.*, 16 (Suppl. 1): S14-S26.